

AXAF Mission to be led by First Female Shuttle Commander

Launch and deployment of the Advanced X-ray Astrophysics Facility Imaging System (AXAF) during the STS-93 mission in December will be led by astronaut Eileen Collins (Lt. Col., USAF) the first woman to command a Space Shuttle.



Eileen Collins

Collins will be joined on Columbia's flight deck by Pilot Jeffrey Ashby and Mission Specialists Steven Hawley and Cady Coleman. CNES Astronaut Michel Tognini was named to the crew on November 12.

STS-93 will be the first flight for Ashby. Hawley will be making his fifth space flight during STS-93, having flown previously on STS-41D in 1984, STS-61C in 1986, STS-31 in 1990 and STS-82 in 1997. Coleman has one previous space flight to her credit, having flown on STS-73, the second United States Microgravity Laboratory mission in October/November 1995. Tognini, who spent 14 days on the Mir space station in 1992, will be making his first Shuttle flight on STS-93.

Selected as an astronaut in 1990, Collins has served as a pilot on her two previous space flights. Her first space flight was STS-63 in February 1995 as Discovery approached to within 30 feet of Mir, in a dress rehearsal for the first Shuttle/Mir docking. In May 1997, she visited the Mir space station as pilot on board Atlantis for the sixth Shuttle/Mir docking mission, delivering Astronaut Mike Foale and returning Jerry Linenger to Earth.

During the five-day mission, the crew will deploy AXAF, which will conduct comprehensive studies of the universe. AXAF will be the most advanced X-ray telescope ever flown. When scientists begin using AXAF next year, they will finally be able to unlock the secrets of some of the most distant, powerful and violent objects known to exist in the universe. They will study such exotic phenomena as exploding stars called supernovae, strange powerful objects called quasars, and mysterious black holes which are so massive that everything near them is pulled inside causing an explosion of X-rays that AXAF can study.

Employee Update Today at 10 a.m.

An Employee Information Update will be held today at 10 a.m. in Building 4200, Morris Auditorium. Employees who are unable to attend may view the Update on Centerwide closed circuit television.



Acting Marshall Center Director Carolyn Griner and Cary Reily of EL64 hold the plaque commemorating Marshall's X-ray Calibration Facility induction into the State of Alabama Engineering Hall of Fame. The induction of the X-ray Facility occurred during the Hall's 10th Anniversary celebration in February. The X-ray Calibration Facility is the single project within Alabama selected for this honor in 1998. Photo by Jack Ray

Schwinghamer Honored Today

Marshall Associate Director (Technical) Robert Schwinghamer has been named an Honor Award winner by the Conference of the Federal Environmental Engineers (CFEE).

The award, which is presented for exemplary work accomplishments by environmental engineers in the Federal service, will honor Schwinghamer for successfully leading the NASA Operational Environment Team since its inception in 1992.

Schwinghamer will receive the award today during the awards luncheon of the CFEE in Washington, D.C.



Robert Schwinghamer

Schwinghamer is a fellow of the Society of Advancement of Materials and Processes Engineering, a Fellow of the Society of Manufacturing Engineers, a Fellow to the American Society for Materials-International and in 1996 was elected to the grade of Fellow of the American Institute of Aeronautics and Astronautics.

Women Scientists, Engineers Contribute to Shuttle's First Launch

Editor's note: The month of March observes National Women's History Month as well as the 150th Anniversary of the Women's Right Movement. The article which follows is the first of a two-part look at contributions made by women at the Marshall Center.

by **Mike Wright**
Marshall Center Historian

During the 1960s, Marshall developed the Saturn rockets that would launch the first Americans to the moon. During the 1970s, the Center developed the propulsion elements needed for the Space Shuttle first launched in 1981. During that 20-year period, women scientists and engineers here contributed to those accomplishments and others. Today, Marshall women hired during that period are still making significant contributions, and they serve as mentors for the women who came to Marshall in the 1980s and 1990s.

An article in the *Marshall Star* on January 11, 1961, stated that "22 scientists and engineers are listed among 43 professionally skilled women at MSFC. **Doris Chandler** and **Sara Corbitt** were among other engineers who contributed to the Center's success during the Apollo/Saturn era. Corbitt was assigned to the Center's Propulsion and Vehicle Engineering Laboratory and studied ways to obtain accurate analyses of metals and alloys. **Mary Jo Smith**, a physicist with a degree from Texas Christian University, was assigned to the Center's Research Projects Division to work on plans for the Pegasus meteoroid detection satellite that the Center launched aboard a Saturn rocket in the early 1960s. Only a few months after Marshall was created in 1960, **Laura M. Cheng**, who held a PhD in physics, was reported working in the Center's Aeroballistics Division on research in the high altitude velocity of sound, high speed gas physics and the transport properties of gases at high temperatures. Another physicist, **Joyce Neighbors**, was working in 1961 in the Advanced Studies Branch of the Center's Guidance

and Control Division. **Margaret W. "Hap" Brennecke**, who had earned a BS from Ohio State University, worked 22 years for a private firm as a research engineer before coming to the Marshall Center as a welding expert. Throughout the Saturn era, she was called on to make decisions on metals and welding techniques. She was also cited for her work with lightweight high-strength materials. Later assigned to the Metallic Materials Division of the Center's Materials and Processes Lab, she worked on the specifications for metals to be used in Spacelab and the Solid Rocket Boosters for the Space Shuttle. By 1964, **Ann McNair** was chief of the Mission Studies Section in Marshall's Aero-Astroynamics Laboratory. McNair's involvement included Saturn flight trajectory studies and determining how long satellites might remain in orbit. Early on, she authored papers on the lifetime of satellites and on comparing onboard and ground tracking for lunar missions. McNair earned a BS in physics and mathematics from the University of Alabama, Tuscaloosa. **Ethel H. Bauer**, another Marshall Center aerospace engineer, was cited for her contributions to lunar trajectory studies during the Apollo era. A graduate of Huntington College with a degree in mathematics, Bauer worked in the Center's Mission Analysis Section. In 1965, **Ann Whitaker**, who later earned a PhD, was working as a physicist in Marshall's Propulsion and Vehicle Engineering Laboratory. Her work during the Saturn era included studying lubricants and conducting research in surface physics. Part of her research included a series of high load friction tests of metal surfaces coated with a dry film lubricant. Whitaker earned a BS in physics and mathematics from Berry College in Rome, Georgia.

As the Saturn/Apollo era began to close, women at Marshall also provided technical expertise in programs like earth resources

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Rosa Kilpatrick, Project LASER Volunteer, visits Stone Middle School in Huntsville to explain the Space Program to a group of special education students as part of Aerospace Week. NASA's Education Programs Office was able to schedule 45 volunteer presenter visits, impacting 35 schools and 2500 students during the week of March 2-6, 1998. Photo by Emmett Given

STS-87 Crew to visit Marshall Thursday

The crew of the fourth Marshall-managed U.S. Microgravity Payload mission, STS-87, will present highlights at 10 a.m. Thursday in Morris Auditorium. The STS-87 mission team conducted the first flight of Marshall's Video Guidance Sensor experiment.

Attending will be STS-87 Commander Kevin Kregel; Pilot Steve Lindsey; Mission Specialists Winston Scott, Kalpana Chawla and Takao Doi; and Payload Specialist Leonid Kadenyuk.

Marshall employees and on-site contractors are invited to attend and should be seated in Morris Auditorium by 9:30 a.m.

Innovative Knee Brace to Begin Clinical Testing

by Joy Carter

A knee brace that uses Space Shuttle propulsion technology has moved a step closer to being available to help knee injury and stroke patients. Inventors at NASA's Marshall Space Flight Center in Huntsville, Ala., have turned over the final design and prototype to industry partners at Horton's Orthotic Lab in Little Rock, Ark.

The company will now produce six knee braces like the prototype for use in clinical testing. "We want to validate that the knee brace really is as good as we think it is," said Gary Horton, certified orthotist and president of Horton's. "We have a team in place to begin clinical testing as soon as the knee braces are ready."

Although designed for knee injury and stroke patients, Horton believes the new knee brace may potentially serve many more patients. "People with spinal cord injuries, birth defects — such as spina bifida — and post-polio may also benefit from this device," said Horton. "We see great promise for using this device in pediatrics. Most of the brace's parts can easily be made smaller to fit children."

The device, called the Selectively Lockable Knee Brace, may mean faster, less painful rehabilitation for patients by allowing the knee to move when weight is not on the heel. Devices currently on the market lock the knee in a rigid, straight-leg position, or allow continuous free motion.

This is a notable achievement," said



Marshall engineers Michael Shadoan (left) and Neill Meyers (right) present the selectively lockable knee brace prototype to Gary Horton (center), president of Horton's Orthotic Lab. The knee brace uses Space Shuttle propulsion technology.

Courtesy Photo

Steve Jones, of Marshall's Technology Transfer Office. "The final design of the knee brace represents years of hard work by Marshall's team of engineers, and doctors and technicians at Horton's."

Marshall Center engineers Michael Shadoan and Neill Myers presented the first concepts of their invention to Horton's in 1994. Together, NASA engineers and the company worked to tailor the design to meet the needs of orthotics patients. The brace was first tested at Horton's last year, then returned to Marshall for final "tweaking." In September, the company signed a licensing

agreement with Marshall to manufacture the brace. The knee brace is just one example of how space technology is being used to improve the lives of people on Earth. NASA inventors Shadoan and Myers are space propulsion engineers who use the same mechanisms and materials to build systems for rockets that they used to design and develop the knee brace.

"It has been exciting to see the development of the knee brace progress to this stage," said Jones. "This has been a good partnership. And the results have such tremendous potential to help so many people."

4200 Complex Parking Lots to be Painted

Repainting of the parking lots in the 4200 complex will begin on Saturday, weather permitting. The painting will be done in phases on Saturdays to prevent accidental spraying of vehicles.

Call for Nominations Announced

The Huntsville Chapter of the National Contract Management Association (NCMA) is calling for nominations for the Contract Professional of the Year award.

This award is designed to provide recognition to an individual working in the field of procurement and contract management who has uniquely performed one or more exemplary achievements. A total of three awards will be presented to

individuals who represent both the government and private industry.

Additional information regarding the eligibility, criteria and nomination process is available from Sharon Mueller-Myers at 876-5642. Deadline for nomination submissions is April 22. The award(s) will be presented in June at the annual NCMA Huntsville Chapter Awards ceremony.

Lunar Prospector Finds Proof of Water Ice at Moon's Poles

There is a high probability that water ice exists at both the north and south poles of the Moon, according to initial scientific data returned by NASA's Lunar Prospector.

The Discovery Program mission also has produced the first operational gravity map of the entire lunar surface, which should serve as a fundamental reference for all future lunar exploration missions, project scientists announced last week at NASA's Ames Research Center, Moffett Field, Calif.

Just two months after the launch of the cylindrical spacecraft, mission scientists have solid evidence of the existence of lunar water ice, including estimates of its volume, location and distribution.

"We are elated at the performance of the spacecraft and its scientific payload, as well as the resulting quality and magnitude of information about the Moon that we already have been able to extract," said Dr. Alan Binder, Lunar Prospector Principal Investigator from the Lunar Research Institute, Gilroy, Calif.

The presence of water ice at both lunar poles is strongly indicated by data from the spacecraft's neutron spectrometer instrument, according to mission scientists. Graphs of data ratios from the neutron spectrometer "reveal distinctive 3.4 percent and 2.2 percent dips in the relevant curves over the northern and southern polar regions, respectively," Binder said. "This is the kind of data 'signature' one would expect to find if water ice is present."

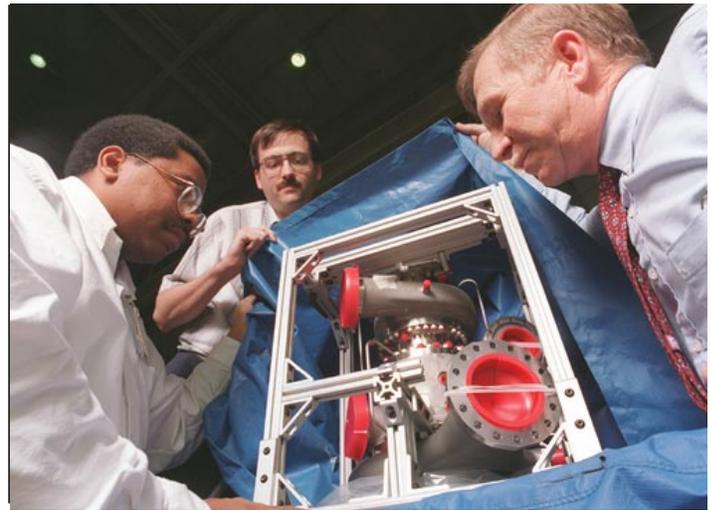
However, the Moon's water ice is not concentrated in polar ice sheets, mission scientists cautioned.

Using models based on other Lunar Prospector data, Binder and Feldman predict that water ice is confined to the polar regions and exists at only a 0.3 percent to 1 percent mixing ratio in combination with the Moon's rocky soil, or regolith.



Marshall's Dr. Richard Hoover (left) and Dr. S.S. Abyzov of Russia's Institute of Microbiology of the Russian Academy of Sciences examine ancient ice drilled at Russia's South Pole Vostok Station under the environmental scanning electron microscope. Samples from as deep as 11,840 feet are on their way from Vostok to the Institute of Microbiology, with portions arriving at Marshall later this year.

Photo by Dennis Olive



The turbopump for the Fastrac engine arrived at the Marshall Center last week, marking a major milestone in development of the X-34 Fastrac engine. Turbopump testing is scheduled to begin next month. Following turbopump testing, the Fastrac will be shipped to Stennis Space Center in Mississippi for full-engine tests beginning in June.

Photo by Emmett Given

Women's History

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technology. **Lou E. Hall**, a mathematician who earned a degree from Tuskegee Institute in 1967, was involved in analyzing Earth Resource Technology Satellite Data. She specialized in hydrology and watershed studies. **Margaret B. Alexander**, and **Barbara R. Facemire** were assigned to the Center's Space Science Laboratory in the 1970s. Alexander had joined the Marshall Center in 1961 after earning a BS in mathematics from the University of Alabama. As an aerospace engineer in the laboratory's Aerospace Environment Division, she performed professional engineering and scientific studies of problems in fluid dynamics and thermodynamics of the atmosphere. Part of her work included studying turbulence, wind shears, and gusts and their relationship to plans for the Space Shuttle. Facemire, who had earned a BS degree in chemistry from St. Mary's Dominican College in New Orleans began work at the Marshall Center in 1967. She studied the basic properties of materials as part of her assignment in Solid State Physics Division in the Space Sciences Laboratory. During the Skylab era, she served as a principal investigator on a science demonstration in liquid diffusion. Facemire was also involved in two science demonstrations conducted as part of the U.S.-Soviet Apollo-Soyuz Test Project mission in 1975.

During the Skylab mission, Marshall's **Dean Russell**, an Auburn graduate with a BS in mathematics, was part of a contamination control team that analyzed changes that occurred in the contamination levels surrounding instruments aboard Skylab.

Nancy J. Milly was employed by the Marshall Center in 1960 after earning a degree in aerospace engineering from Virginia Polytechnic Institute. She began work as a flight systems engineer in the Center's Quality Laboratory. By 1975, she was working as an aerospace engineer analyzing failure mode effects of flight systems.

(To be continued next week)

Upcoming Events

Marshall Center's Open House '98 Set for May 16

The Marshall Center Open House is scheduled for 9 a.m. to 6 p.m. May 16. Visitors will be able to see the Space Station being built, meet astronauts, see rocket tests and visit Mission Control Huntsville, in addition to a host of other exciting activities.

The official homepage for Marshall's Open House is up and running. Visitors to the site can volunteer for the event, peruse the exhibiting organizations' homepages, or look up Marshall Open House policies and guidelines. Retirees interested in volunteering should call Billie Swinford at 4-0087.

The web address is: <http://www.msfc.nasa.gov/openhouse/> or for more information on the open house, visitors may call 1-888-901-NASA.

Spot an Environmentalist

Until March 31, Center employees are invited to help the Marshall Recycling Committee to "Spot an Environmentalist." Contact Ted Ellett at 4-4778 or Doug Danley at 4-4770 with the name, mail code, and telephone number along with a brief description of the environmentally safe act you saw. Winners will receive gift certificates to Wild Birds Unlimited.

Great Moon Buggy Race

Teams representing colleges and high schools from across the country are preparing to compete in the Fifth Annual Moon Buggy Race, which has been set for April 18 at the U.S. Space and Rocket Center. Questions about the event should be directed to Marshall's Public Inquiries Office at 4-9492, or to Jim Dowdy at 4-7604.



Marshall Associate Director Sid Saucier (left), Director for Center Operations Sheila Cloud (center), and Pete Allen, director of the Facilities Services Office rehearse the skit, "Mama Sang Bass" for the annual dinner honoring Marshall Center retirees planned for March 24 at the Von Braun Center. A social will begin at 6 p.m. followed by dinner at 7 p.m. and the program at 8 p.m. Tickets cost \$15 and may be purchased from administrative officers.

Photo by Terry Leibold

Child Care Center Joins USDA Food Program

The Marshall Child Care Development Center (MCDC) announces its participation in the USDA Child Care Food Program. Balanced and nutritious meals will be available at no separate charge to all enrolled persons at the MCDC and will be provided without regard to race, color, national origin, age, sex, or disability.

If you believe you or anyone has been discriminated against, write immediately to: Administrator, Food and Nutrition

Service, 3101 Park Center Drive, Alexandria, VA 22302.

For more information, please contact the Marshall Child Care Development Center, Bldg. 4494, PO Box 9138, Marshall Space Flight Center, AL 35812, or call David Siersma at 4-1325, or Heather Walsh at 4-8609.

The Secretary of Agriculture has announced that the Income Eligibility Guidelines effective July 1, 1997 through June 30, 1998, are shown below.

HOUSEHOLD SIZE	HOUSEHOLD INCOME					
	REDUCED-PRICE MEALS			FREE MEALS		
	ANNUAL	MONTHLY	WEEKLY	ANNUAL	MONTHLY	WEEKLY
1	\$14,597	\$1,217	\$281	\$10,257	\$855	\$198
2	\$19,629	\$1,636	\$378	\$13,793	\$1,150	\$266
3	\$24,661	\$2,056	\$475	\$17,329	\$1,445	\$334
4	\$29,693	\$2,475	\$572	\$20,865	\$1,739	\$402
5	\$34,725	\$2,894	\$668	\$24,401	\$2,034	\$470
6	\$39,757	\$3,314	\$765	\$27,937	\$2,329	\$538
7	\$44,789	\$3,733	\$862	\$31,473	\$2,623	\$606
8	\$49,821	\$4,152	\$959	\$35,009	\$2,918	\$674
FOR EACH ADDITIONAL MEMBER ADD	\$5,032	\$420	\$97	\$3,536	\$295	\$68

Employee Ads

Miscellaneous

- ★ Playskool 1-2-3 highchair, \$50; Graco stroll-a-bed stroller, \$30; Little Tykes activity barnyard, \$60. 837-6109
- ★ Utility trailer 5' x 8', new decking, \$320. 722-8290
- ★ Maple Hill, double lawn crypt, flat bronze monument area, pre-installed vaults, \$2,400. 881-0278
- ★ Tow dolly, extra heavy duty, two wheel drive on, \$550. 461-8721
- ★ Antique walnut bed with rails, cherry dresser w/ mirror, chest of drawers, \$175 ea. 881-8220
- ★ Boys 20" bicycles: Murray 5 speed, \$20; Nishiki 5-speed, \$30; Huffy \$15. 851-6249
- ★ Computer hutch, \$15. 837-2386
- ★ Sears Cardio Fit plus, original price \$305, will sell for \$160. 534-8603
- ★ Baby bed for sale. 837-5113.
- ★ Four all season steel belted radials, new never mounted, Sentry Supreme P195/75/R14, \$125. 859-8221
- ★ Lawn tractor, MTD, 38" with 12HP, B&S, \$350. 837-4136
- ★ Evinrude, 65HP out board motor, \$300; SS prop \$125. 837-4136
- ★ Oak kitchen cabinets 16', base and wall units, Kitchen Aide dishwasher, Jennaire range, \$500. 539-0994
- ★ MacIntosh Performa 475, 12MB RAM, 160MB hard drive, 14" color monitor, keyboard, mouse, \$345; double-wide garage door & fittings, \$150. 778-9149
- ★ Washer and Dryer, beige, \$150 for set. 721-1538 after 5 p.m.
- ★ Two sets of basketball tickets for NCAA Sub-Regionals March 13 and March 15 in Georgia Dome, lower level, \$96. 859-6724

Vehicles

- ★ 1994 Plymouth Grand Voyager SE, 57K miles, rear a/c, 3.3 V6, luggage, PW/PL, new tires, \$12,875. 721-0617
- ★ 1996 Pontiac Trans Sport van, 7/8 passenger, \$12,500. 830-8339
- ★ 1995 Hyundai Accent under 14K miles, 5-speed, 4-door, a/c, AM/FM, \$7,200 or best offer. 881-8364
- ★ 1991 Lincoln Continental Signature series, options, 77K miles, new Bridgestone tires, \$6,500. 837-0085
- ★ 1993 Chevrolet Lumina, V-6, ABS, cassette, locks, cruise, 83K miles. 880-9171
- ★ 88 Mazda 323 SE, 4-door, 5-speed, a/c, AM/FM tape, 139K, \$1,600. 881-7608
- ★ 1991 Ford Taurus GL, V-6, 4-door, AC/PW/PL, AM/FM cassette, 119K miles. 830-8354
- ★ 1987 Ford F150, 5-speed, 6 cyl., new paint, \$3,450. 837-0085
- ★ 1996 Nissan King Cab 4WD pickup, 18K miles, \$15,500. 828-6117

- ★ 1991 Buick Regal custom, 4-door, PW/PD/PL, cruise, tilt steering. 533-5039
- ★ 1996 Nissan 240SXSE extended warranty, 5-speed, CD, new tires, moon roof, emerald, take up payments. 772-3800
- ★ 1971 Chevrolet Impala, 4-door, second owner, 50K miles, \$1,600. 878-0809

Wanted

- ★ Two twin size bed frames, prefer white wood to paint. 837-5113

Free

- ★ Puppies need a good home. Medium sized mix breed. Call after 5:30 p.m. 732-4739

Center Announcements

- ☛ **NARFE** — The National Association of Retired Federal Employees will meet March 14 at the Senior Center on Drake Avenue. Mrs. Baptiste, NARFE field vice-president for Region Three, will be the speaker. Refreshments at 9:30 a.m., program at 10 a.m. For more information call 837-0382 or 881-3168
- ☛ **Toastmasters International** — The NASA Lunar Nooners Toastmasters Club will meet March 17 at 11:30 a.m. in the 4610 cafeteria conference room. For more information, call Debbie Hagar at 461-4992, or Lee Johns at 544-5142.
- ☛ **MARS Dance Club** — The MARS Ballroom Dance Club will offer Rumba and Single Swing lessons (\$10 per person) from 7 to 8 p.m. March 16, 23 and 30. The classes will be held in the Parish Hall of Saint Stephen's Episcopal Church at 8020 Whitesburg Drive. For more information call Pat Sage at 544-5427; for a membership application, call Linda Kinney at 544-0563.
- ☛ **Technology Day** — Lockheed Martin will hold a Technology Day in the G-13 Conference Room in Bldg. 4200 on March 12. Exhibits will be held from 8:30 a.m. to 3:30 p.m., to include the lunch period. Technical representatives will be available for discussions the entire day. Marshall employees may participate by showing their badge.
- ☛ **EAP Lunch & Learn** — MSFC's Employee Assistance Program will offer a Lunch & Learn Seminar, April 1, 12 noon to 12:45 p.m. in Morris Auditorium on the topic "Decreasing One's Risk of Skin Cancer." Dr. John K. Sowell, a Huntsville dermatologist, will be the speaker. All Marshall employees on-site contractor and family members are invited to attend.
- ☛ **MARS Golf Club** — The 1998 MARS Golf Club tournament will be held March 14 at Chesley Oaks. The format for this event will be 4-ball (2-player teams, better ball) and is open to all employees and retirees. The tournament will be flighted based on handicaps and you select your

own partner. Entries must be received by 12 noon March 6 and the entry fee is \$4. Green fees will be paid at the course. The following individuals serve as entry contacts: L. Foster (4-1589), J. Butler (4-3808), J. Loose (4-2422), and R. Harwell (4-2684). For additional information call P. McKinnon.

- ☛ **MSFC Softball Club** — The Softball Club will meet March 12 at 12 noon in the building 4752 all-purpose room. Players looking for a team need to attend as well as team representatives. For more information contact Rhonda Pepper at 4-5432 or rhonda.pepper@msfc.nasa.gov.
- ☛ **Public Inquiries** — Please visit the Public Inquiries Office located in Bldg. 4200, room 101. Among new items is a wonderful, colorful and informative brochure on how to access information from the Space Science Laboratory on the web. Other publications and handouts related to Marshall and NASA are available.
- ☛ **Annual Easter Egg Hunt** — Volunteers are needed to help with the annual NASA Exchange-sponsored Easter Egg Hunt scheduled for April 5 at 2 p.m. In case of rain, the event will be held April 11. Children of Marshall employees and on-site contractors may participate. Contact Gena Marsh, 4-0128 or Donna Mahieux, 4-7511.

Job Opportunities

CPP 98-30-MB, IFMP Training Program Coordinator, GS-301-12/13, Customer & Employee Relations Directorate. Closes March 12.

Reassignment Bulletin 98-6-RE, AST, Navigation, Guidance, and Control Systems, GS-861-11/12/13 (2 vacancies), Program Development, Preliminary Design Office, Avionics & Propulsion Systems Division, Navigation & Control Systems Team. Extended until March 13.

CPP 98-33-RE, Secretary (OA), GS-318-8, Science & Engineering Office of Director. Closes March 12.

CPP 98-17-CP, Budget Analyst, GS-560-13/14, Office of the Chief Financial Officer, Institutional Operations Office. Closes March 13.

CPP 98-34-JB, AST, Technical Management, GS-801-15, Space Shuttle Projects Office, Office of the Manager. Closes March 13.

CPP 98-25-JB, AST, Technical Management, GS-801-14 (2 positions), Space Shuttle Projects Office, Solid Rocket Booster Project & Shuttle Main Engine Project. Closes March 13.

CPP 98-31-CV, Supv. AST, Project Management, GS-801-15, Microgravity Materials Science Projects Office, MSFC Microgravity Science and Applications Projects Office. Closes March 13.

Reassignment Bulletin: 98-11-CV, AST, Aerospace Flight Systems, GS-861-13 (multiple vacancies), Microgravity Research Program Office, MSFC Microgravity Science and Applications Projects Office. Closes March 20.

MARSHALL STAR

Marshall Space Flight Center, Alabama 35812

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